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10/775,701	02/10/2004	Kenichi Nakajima	S004-5211	9182

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EXAMINER	
BAKER, DAVID S	

ART UNIT	PAPER NUMBER
2884	

DATE MAILED: 05/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/775,701	NAKAJIMA, KENICHI	
	Examiner	Art Unit	
	David S. Baker	2884	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *2/10/2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10 February 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☒ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *2/10/04, 12/28/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Japan on 02/25/2003. It is noted, however, that applicant has not filed a certified copy of the 2003-047248 application as required by 35 U.S.C. 119(b).

Claim Objections

2. Claim 8 is objected to because of the following informalities: Claim 8 is dependent upon a claim, claim 10, which does not precede it. A series of singular dependent claims is permissible in which a dependent claim refers to a preceding claim which, in turn, refers to another preceding claim. A claim that depends from a dependent claim should not be separated by any claim which does not also depend from said dependent claim. It should be kept in mind that a dependent claim may refer to any preceding independent claim. In general, applicant's sequence will not be changed. See MPEP § 608.01(n). Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. Claims 1-8, 10, and 11 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. The term "strong directivity" in claims 1, 3, and 5 is a relative term which renders the claim indefinite. The term " strong directivity " is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably appraised of the scope of the invention. Additionally, the term "having a directivity weaker than the directivity of the other

directive sensors" in claims 3 and 5 is a relative term which renders the claim indefinite. The term "having a directivity weaker than the directivity of the other directive sensors" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, is referred to in relation to another relative term, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. The balance of claims is objected to as being dependent upon an already objected to claim.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 2, 4, 8, 10, and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Jacobs (International PCT Application #96/36960 A1).

Regarding claim 1, Jacobs discloses a sensor device comprising; a plurality of directive sensors (individual sensors 124a-124d, figures 1 and 1a and 1b, page 8 lines 15-37, page 9 lines 1-37, page 10 lines 1-15) each having a strong directivity (figure 3, page 9 lines 26-37, page 10 lines 1-15) for detecting a detection object (user's hand 26, figure 1a) within a detection area (figure 3, page 9 lines 26-37, page 10 lines 1-15), the directive sensors being mounted relative to one another so that detection areas thereof cross each other (figure 3, page 9 lines 26-37, page 10 lines 1-15).

Regarding claim 2, Jacobs discloses that each of the directive sensors (individual sensors 124a-124d, figures 1 and 1a and 1b, page 8 lines 15-37, page 9

lines 1-37, page 10 lines 1-15) outputs a detection signal when the detection object has been detected (page 9 lines 26-37, page 10 lines 1-15, page 17 lines 34-37, page 18 lines 1-31, page 19 lines 11-37, page 20 lines 1-26); and further comprising a position determining circuit (motion detection circuit block 64, figure 6, page 17 lines 34-37, page 18 lines 1-31) for determining in accordance with the detection signals whether the detection object reaches a predetermined position (figures 6a-6c, page 19 lines 11-37, page 20 lines 1-26).

Regarding claim 4, Jacobs discloses a moving direction determining circuit (page 9 lines 32-37, page 10 lines 1-15) for determining a moving direction of the detection object (page 9 lines 32-37, page 10 lines 1-15) in accordance with an order in which the directive sensors detect the detection object (page 9 lines 32-37, page 10 lines 1-15).

Regarding claim 10, Jacobs discloses that the sensor device further comprises a moving direction determining circuit (figures 1a and 1b and 3, page 9 lines 26-37, page 10 lines 1-15) for determining a moving direction of the detection object (figures 1a and 1b and 3, page 9 lines 26-37, page 10 lines 1-15) in accordance with an order in which the directive sensors detect the detection object (figures 1a and 1b and 3, page 9 lines 26-37, page 10 lines 1-15).

Regarding claim 8, Jacobs discloses a display for displaying time (figure 1); a sensor device according to claim 10; and a drive circuit (clock circuit 54, figure 6, page 17 lines 34-37, page 18 lines 1-18) for driving the display when the position determining circuit (detection circuit block 70, figure 6, page 17 lines 34-37, page 18 lines 1-37, page 19 lines 1-10) determined that the detection object is

in a predetermined position or when the moving direction determining circuit determines that the detection object moves in a predetermined direction (page 9 lines 32-37, page 10 lines 1-15, page 17 lines 34-37, page 18 lines 1-37, page 19 lines 1-10).

Regarding claim 19, Jacobs discloses an electronic timepiece comprising; a display for displaying time (figure 1); a sensor device comprised of a substrate (housing 218, figure 5a) and at least two sensors (sensors 124a-124d, figure 3) each having a sensor element (sensor 46, figure 5a) and a cover member (housing 218, figure 5a) covering the sensor element, the cover member having a through-hole (cylindrical first portion 236a, frustoconically shaped second portion 236b, figure 5a) through which the sensor element detects a detection object (user's hand 26, figure 1a) within a detection area with a preselected degree of directivity (actuation zone 130a-130d, figure 3), the sensors being mounted on the substrate so that the detection areas of the sensor elements cross each other (figure 3, page 9 lines 26-37, page 10 lines 1-15), and each of the sensors outputting a detection signal when the detection object has been detected (page 9 lines 26-37, page 10 lines 1-15, page 17 lines 34-37, page 18 lines 1-31, page 19 lines 11-37, page 20 lines 1-26); a position determining circuit (motion detection circuit block 64, figure 6, page 17 lines 34-37, page 18 lines 1-31) for determining in accordance with the detection signals outputting by the sensors whether the detection object reaches a predetermined position (figures 6a-6c, page 19 lines 11-37, page 20 lines 1-26); a moving direction determining circuit (page 9 lines 32-37, page 10 lines 1-15) for determining a moving direction with an order in which the sensors

detect the detection object (user's hand 26, figures 1a and 1b and 3, page 9 lines 26-37, page 10 lines 1-15); and a drive circuit (clock circuit 54, figure 6, page 17 lines 34-37, page 18 lines 1-18) for driving the display when the position determining circuit determines that the detection object is in a predetermined position or when the moving direction determining circuit determines that the detection object moves in a predetermined direction (page 9 lines 32-37, page 10 lines 1-15, page 17 lines 34-37, page 18 lines 1-37, page 19 lines 1-10).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 6, 7, 11, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jacobs (International PCT Application #96/36960 A1) in view of Branch (US Patent #5,309,145 A).

Regarding claims 6 and 7, which are dependent upon claims 2 and 4 respectively, Jacobs discloses all the limitations of claim 2 and 4 respectively, and that the detection object comprises a person (user's hand 26, figure 1a). Jacobs does not disclose expressly that each of the sensors comprises a pyroelectric infrared sensor for detecting an infrared ray emitted from the person. Branch discloses that the sensor comprises a pyroelectric infrared sensor (pyroelectric sensor 102, figure 4a, column 9 lines 55-68, column 10 lines 1-8) for detecting an infrared ray emitted from the person. At the time the invention was made, it

would have been obvious to a person of ordinary skill in the art to use a pyroelectric infrared sensor as taught by Branch as the sensor elements taught by Jacobs. The motivation for doing so comes from Jacobs where he states, "The sensor may be of any suitable type, including those having an output which varies as a function of light intensity, sonic vibration or other suitable parameter sensed along the line-of-sight." The use of a pyroelectric infrared sensor would improve the detection accuracy of the device in situations such as those that were low light or had loud background noise where light intensity and sonic vibration detectors would be disadvantaged.

Regarding claim 11, Jacobs discloses all the limitations of claim 8 and an electronic watch (figures 1 and 1a) wherein the detection object comprises a person (user's hand 26, figure 1a). Jacobs does not disclose expressly that each of the sensors comprises a pyroelectric infrared sensor for detecting an infrared ray emitted from the person. Branch discloses that the sensor comprises a pyroelectric infrared sensor (pyroelectric sensor 102, figure 4a, column 9 lines 55-68, column 10 lines 1-8) for detecting an infrared ray emitted from the person. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use a pyroelectric infrared sensor as taught by Branch as the sensor elements taught by Jacobs. The motivation for doing so comes from Jacobs where he states, "The sensor may be of any suitable type, including those having an output which varies as a function of light intensity, sonic vibration or other suitable parameter sensed along the line-of-sight." The use of a pyroelectric infrared sensor would improve the detection accuracy of the device in situations

such as those that were low light or had loud background noise where light intensity and sonic vibration detectors would be disadvantaged.

Regarding claim 20, Jacobs discloses all the limitations of claim 19, but does not disclose expressly that each of the sensors comprises a pyroelectric infrared sensor for detecting an infrared ray emitted from the person. Branch discloses that the sensor comprises a pyroelectric infrared sensor (pyroelectric sensor 102, figure 4a, column 9 lines 55-68, column 10 lines 1-8) for detecting an infrared ray emitted from the person. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use a pyroelectric infrared sensor as taught by Branch as the sensor elements taught by Jacobs. The motivation for doing so comes from Jacobs where he states, "The sensor may be of any suitable type, including those having an output which varies as a function of light intensity, sonic vibration or other suitable parameter sensed along the line-of-sight." The use of a pyroelectric infrared sensor would improve the detection accuracy of the device in situations such as those that were low light or had loud background noise where light intensity and sonic vibration detectors would be disadvantaged.

9. Claims 3, 5, 12-18, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jacobs (International PCT Application #96/36960 A1) in view of Lin (US Patent 5,543,620 A).

Regarding claim 3, Jacobs discloses all the limitations of claim 2, but does not disclose expressly a directive sensor having a directivity weaker than the directivity of the other directive sensors; wherein the position determining circuit

detects that the detection object reaches the predetermined position when it receives the detection signal from each of the directive sensors having the strong directivity after receiving the detection signal from the directive sensor having the weaker directivity. Lin discloses a sensor that has a large conical detection area with a weaker directivity than the sensors taught by Jacobs (column 6 lines 1-33). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use the pyroelectric sensor arrangement taught by Lin in combination with the sensors of the detection device discloses by Jacobs. The motivation for doing so would be to improve the results of detection as states by Lin, "...since the instrument is generally set in such a posture that a moving object being sensed typically crosses from the side at a large viewing angle (as shown by the moving direction P of the moving object in FIG. 5), the inclined structure overall improves the results of detection." By using a sensor as taught by Lin which has a large conical detection area as a replacement for one of the sensors disclosed by Jacobs which has a narrower conical detection area, it will be inherent in the invention that the sensor with the large conical detection area will be the first sensor to sense the detection object and will, in turn, be the first to initiate the position determining circuit.

Regarding claim 5, Jacobs discloses all the limitations of claim 4, but does not disclose expressly that the directive sensor comprises a directive sensor having a directivity weaker than the directivity of the other directive sensors; wherein the moving direction determining circuit determines the moving direction of the detection object in accordance with the order in which the directive sensors

having the strong directivity detect the detection object after the moving direction determining circuit receives the detection signal from the directive sensor having the weaker directivity. Lin discloses a sensor that has a large conical detection area with a weaker directivity than the sensors taught by Jacobs (column 6 lines 1-33). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use the pyroelectric sensor arrangement taught by Lin in combination with the sensors of the detection device discloses by Jacobs. The motivation for doing so would be to improve the results of detection as states by Lin, "...since the instrument is generally set in such a posture that a moving object being sensed typically crosses from the side at a large viewing angle (as shown by the moving direction P of the moving object in FIG. 5), the inclined structure overall improves the results of detection." By using a sensor as taught by Lin which has a large conical detection area as a replacement for one of the sensors disclosed by Jacobs which has a narrower conical detection area, it will be inherent in the invention that the sensor with the large conical detection area will be the first sensor to sense the detection object and will, in turn, be the first to initiate the moving direction determining circuit.

Regarding claim 12, Jacobs discloses a sensor device comprising; a substrate (housing 218, figure 5a); at least two sensors (sensors 124a-124d, figure 3) each having a sensor element (sensor 46, figure 5a), the sensors being mounted on the substrate so that the detection areas of the sensor elements cross each other (figure 3, page 9 lines 26-37, page 10 lines 1-15). Jacobs does not disclose expressly a cover member covering the sensor element, the cover member having

a through-hole through which the sensor element detects a detection object within a detection area with a preselected degree of directivity. Lin discloses a sensor device comprising a cover member (cover 206, figure 8a) covering sensor elements (pyroelectric elements A1 and A2, figure 8a), the cover member having a through-hole (window 307, figure 8a) through which the sensor element detects a detection object within a detection area (range limits rn1 and rn2, figure 8a) with a preselected degree of directivity (column 6 lines 1-33). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use the pyroelectric sensor arrangement taught by Lin in combination with the sensors of the detection device discloses by Jacobs. The motivation for doing so would be to improve the results of detection as states by Lin, "...since the instrument is generally set in such a posture that a moving object being sensed typically crosses from the side at a large viewing angle (as shown by the moving direction P of the moving object in FIG. 5), the inclined structure overall improves the results of detection."

Regarding claim 13, Jacobs discloses at least two sensors comprising first and second sensors (sensors 124a-124d, figure 3). Lin discloses a sensor mounted on a substrate, the sensor having a sensor element (pyroelectric elements A1 and A2, figure 8a) and a cover member (cover 206, figure 8a) covering the sensor element, the cover member of the sensor having a through-hole (window 307, figure 8a) through which the sensor element of the third sensor detects the detection object (Jacobs - user's hand 26, figure 1a) within a detection area (range limits rn1 and rn2, figure 8a) with a degree of directivity lower than the

preselected degree of directivity (column 6 lines 1-33). By using a sensor as taught by Lin which has a large conical detection area as a replacement for one of the sensors disclosed by Jacobs which has a narrower conical detection area, the above described combination is achieved.

Regarding claim 14, Jacobs discloses that sensor elements mounted on the substrate will inherently have their detection areas cross each other at some distance dependant upon the radial width of each sensor's conical detection area (figure 3).

Regarding claim 15, Lin discloses that the sensors are pyroelectric sensors for detecting an infrared ray emitted from the detection object (column 5 lines 43-54). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use a pyroelectric infrared sensor as taught by Lin as the sensor elements taught by Jacobs. The motivation for doing so comes from Jacobs where he states, "The sensor may be of any suitable type, including those having an output which varies as a function of light intensity, sonic vibration or other suitable parameter sensed along the line-of-sight." The use of a pyroelectric infrared sensor would improve the detection accuracy of the device in situations such as those that were low light or had loud background noise where light intensity and sonic vibration detectors would be disadvantaged.

Regarding claim 16, Jacobs discloses that the first, second, and third sensors outputs a detection signal when the detection object has been detected (page 9 lines 26-37, page 10 lines 1-15, page 17 lines 34-37, page 18 lines 1-31, page 19 lines 11-37, page 20 lines 1-26); and further comprising a position

determining circuit (motion detection circuit block 64, figure 6, page 17 lines 34-37, page 18 lines 1-31) for determining in accordance with the detection signals whether the detection object reaches a predetermined position (figures 6a-6c, page 19 lines 11-37, page 20 lines 1-26).

Regarding claim 17, Jacobs discloses that the position determining circuit (motion detection circuit block 64, figure 6, page 17 lines 34-37, page 18 lines 1-31) detects that the detection object reaches a predetermined position (figures 6a-6c, page 19 lines 11-37, page 20 lines 1-26) when it receives the detection signal from each of the first and second sensors after receiving the detection signal from the third sensor (figures 6 and 6a-6c, page 17 lines 34-37, page 18 lines 1-31, page 19 lines 11-37, page 20 lines 1-26). By using a sensor as taught by Lin which has a large conical detection area as a replacement for one of the sensors disclosed by Jacobs which has a narrower conical detection area, it will be inherent in the invention that the sensor with the large conical detection area will be the first sensor to sense the detection object and will, in turn, be the first to initiate the position determining circuit.

Regarding claim 18, Jacobs discloses a moving direction determining circuit (page 9 lines 32-37, page 10 lines 1-15) for determining a moving direction of the detection object (page 9 lines 32-37, page 10 lines 1-15) in accordance with an order in which the first and second sensors detect the detection object after the moving direction determining circuit receives the detection signal from the third sensor (page 9 lines 32-37, page 10 lines 1-15). By using a sensor as taught by Lin which has a large conical detection area as a replacement for one of the

sensors disclosed by Jacobs which has a narrower conical detection area, it will be inherent in the invention that the sensor with the large conical detection area will be the first sensor to sense the detection object and will, in turn, be the first to initiate the moving direction determining circuit.

Regarding claim 21, Jacobs discloses all the limitations of claim 19, but does not disclose expressly that at least two sensors of the sensor device comprises first and second sensors; and wherein the sensor device further comprises a third sensor mounted on the substrate, the third sensor having a sensor element and a cover member covering the sensor element, the cover member of the third sensor having a through-hole through which the sensor element of the third sensor detects the detection object within a detection area with a degree of directivity lower than the preselected degree of directivity. Lin discloses a sensor device further comprises a sensor (pyroelectric elements A1 and A2, figure 8a) mounted on a substrate, the sensor having a sensor element and a cover member (cover 206, figure 8a) covering the sensor element, the cover member of the sensor having a through-hole (window 307, figure 8a) through which the sensor element of the sensor detects the detection object within a detection area with a degree of directivity lower than the preselected degree of directivity (column 6 lines 1-33) of those sensors as taught by Jacobs. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use the pyroelectric sensor arrangement taught by Lin in combination with the sensors of the detection device discloses by Jacobs. The motivation for doing so would be to improve the results of detection as states by Lin, "...since

the instrument is generally set in such a posture that a moving object being sensed typically crosses from the side at a large viewing angle (as shown by the moving direction P of the moving object in FIG. 5), the inclined structure overall improves the results of detection."

Response to Amendment

10. The amendment filed on 02/22/2005 is accepted and entered.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David S. Baker whose telephone number is 571-272-6003. The examiner can normally be reached on MTWRF 10:30-7:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David P. Porta can be reached on 571-272-2444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ALBERT J. GAGLIARDI
PRIMARY EXAMINER

David S Baker
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Art Unit 2884

DSB